
KEY FINANCIAL INDICATORS AND MODELS FOR ASSESSING BUSINESS PROFITABILITY

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Abstract: The article examines the profitability or business return as an important object of modern financial and business analysis. The main profitability indicators are characterized and some specific features related to their correct determination are clarified. A scheme of the organization of the analysis on the topic is presented, including two main types of analysis - comparative analysis, including benchmarking and analysis of the influence of the main factors. Several different models of analysis with the greatest practical significance are presented.

The following two models are explained in more detail: 1) Model for analyzing the Return on assets (ROA), mathematically representing the relationship between efficiency and profitability of the business. Business efficiency depends on the ratio between operating expenses and sales revenue and affects the amount of operating profit. The model is an important tool for corporate management, which supports decision-making related to sales management and optimization of processes and costs. The goal is to achieve sustainable sales growth and increase the operating profit margin, which in turn increases profit and ROA; 2) Steward's model for analyzing the Return on invested capital (ROIC) and Economic Value Added (EVA). The model builds on the conventional approach to profitability analysis by introducing a criterion for a profitable business - the cost of capital.

This approach makes it possible to link the profitability of the business with the value of the company, which is of paramount importance for corporate management and investors.

In conclusion, the results of the study are summarized and conclusions are drawn regarding the benefits for analysts, management and other stakeholders.

Keywords: Business profitability, Business efficiency, Return on invested capital, Economic value added

1. PURPOSE AND OBJECTIVES

The purpose of this article is to provide a new, modern view of business profitability and the organization of analysis. In this regard, the following tasks can be highlighted:

- To explain business profitability and its importance for all stakeholders;
- To present the most important indicators for its measurement and the specifics of their calculation;
- To explain the organization of profitability analysis and present some analysis models that are of particular benefit to corporate management;
- To summarize the results of the study and draw conclusions.

2. INDICATORS FOR ASSESSING BUSINESS PROFITABILITY

Business profitability is one of the most significant qualitative characteristics of any business organization, which is of interest to users of financial and accounting information and the results of financial and business analysis. This is understandable, given that the leading goals of a business organization are to ensure high returns for shareholders (partners) and maintain the value of the company. The profitability of a business is determined for each calendar year as a ratio of the profit (Net Income) and the Capital invested in the business (Total assets). In the theory and practice of financial analysis, two main indicators are used to measure business profitability:

- Return on Assets (ROA);
- Return on Equity (ROE)

To measure the profitability of assets (ROA), net income (NI) is most often used, which is divided by the amount of assets. In this case, ROA expresses the percentage annual growth of assets achieved as a result of the net profit. In certain cases, however, the analyst may decide to use some other type of profit instead of net profit. For example, financial analysts often compare individual companies by their potential for generating income. In comparative analyses, it is much more appropriate to use ROA calculated on the basis of earnings before interest, taxes and depreciation (EBITDA) rather than on the basis of net profit (NI). The reason is that this eliminates differences in the level of debt financing and investment absorption in individual companies. Differences in the level of debt financing are reflected in profitability through interest expenses. Accordingly, differences in investment absorption are reflected in profitability through depreciation expenses. EBITDA is also known as Gross Cash Flow (GCF). It is obtained by increasing earnings before taxes (EBT) by interest expenses and depreciation expenses. Let's imagine that we want to compare two companies (Company "X" and Company "Y") in terms of business profitability for a specific calendar year (Table 1).

Table 1 Comparative Analysis of ROA

Indicators (In thousands of EUR from the 1st to the 8th indicator)	Company "X"	Company "Y"
1. Earnings before interest and taxes (EBIT)	2140	3900
2. Interest expenses (i)	350	830
3. Earnings before taxes (EBT)	1790	3070
4. Corporate tax rate 10% (T)	179	307
5. Net income (NI)	1611	2763
6. Depreciation & amortization expenses (DA)	1122	3456
7. Earnings before interests, taxes, depreciation and amortization (EBITDA)	3262	7356
8. Total assets (TA)	11500	23845
9. ROA = NI / TA (%)	14,01	11,59
10. ROA* = EBITDA / TA (%)	28,37	30,85

Source: author

The net return on assets of company "X" is higher than that of company "Y" (row 9 of table 1). However, it is evident that the level of interest expenses and depreciation expenses of company "Y" is much higher than that of company "X". Therefore, only correct conclusions about the potential of both companies to generate income can be made only if the return on assets is calculated on the basis of profit before interest, taxes and depreciation. In this case, company "Y" has a higher potential to generate income – ROA calculated on the basis of EBITDA (row 10 of table 1) is higher in company "Y". In this case, the following should also be taken into account:

- Higher financial leverage, i.e. higher level of debt financing means higher ROE (return on equity), and this is usually also associated with the ability of the company to distribute a higher dividend. Of course, this is only valid up to a certain degree of financial risk for the company. Too high financial debt usually means poor financial condition and inability to pay dividends.
- Accounting depreciation is a fictitious expense. It is not related to the outflow of money from the company and therefore in financial analysis it is accepted to add it to the profit before interest and taxes (GCF) to determine the gross cash flow (GCF). In the example considered, the gross cash flow related to the amount of assets in company "Y" is larger.

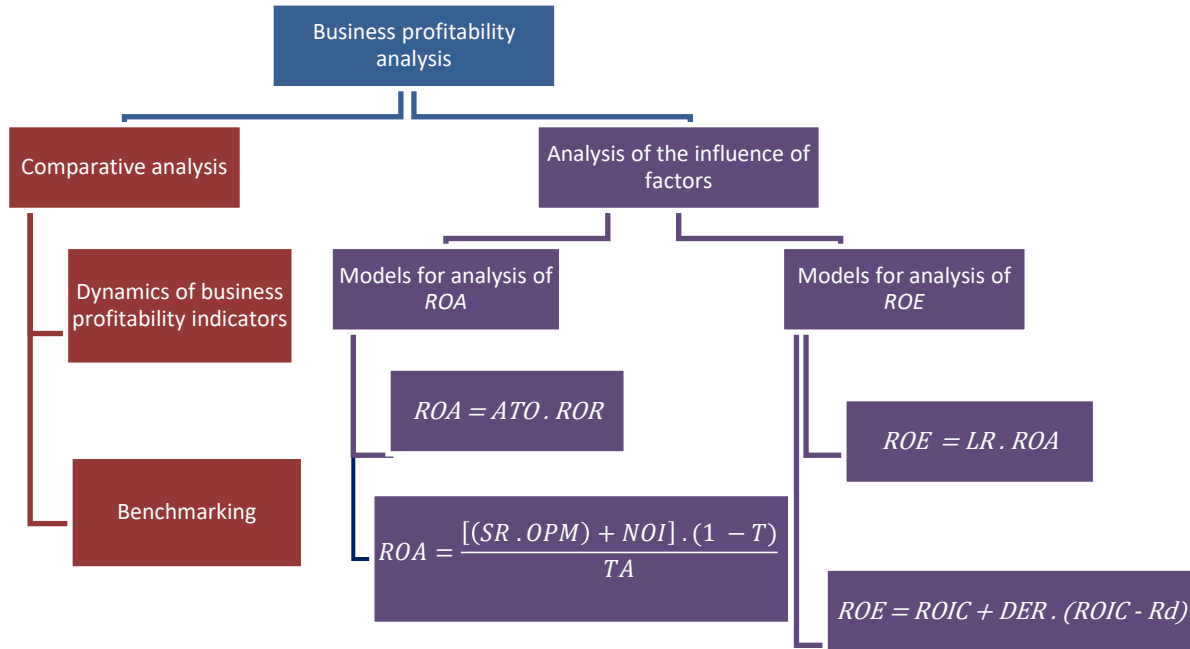
Many authors in the specialized literature on financial analysis, including Eric Helfert draw attention to the fact that when calculating ROA, it is desirable to use the average annual total assets, and not those from the closing balance sheet as of December 31 (Helfert E., 2001). The reason is that the total assets is a dynamic value that is constantly changing under the influence of business operations in the company. Profit is not realized (produced) on December 31, but is a consequence of business operations carried out throughout the all year. The same author points out that it is possible to calculate ROA based on net assets. They are obtained after deducting current non-interest bearing liabilities from the amount of assets (TA). In financial analysis, it is accepted that net assets are considered invested capital (IC).

The other main indicator of business profitability Return on equity (ROE) is the ratio of net income (NI) to equity (E). It expresses the percentage growth in equity achieved thanks to the realized net profit for the year. This indicator is important primarily for the owners of the company and potential investors because it shows the annual return on the capital invested by the owners. ROE is related to other indicators important to shareholders (partners), such as Earnings per share (EPS) and Dividend per share (DPS).

3. ORGANIZATION OF PROFITABILITY ANALYSIS

In methodological terms, two types of analysis can be distinguished – comparative analysis and analysis of the influence of the main factors (Fig. 1). Comparative analysis is carried out in two directions – dynamics of profitability indicators for a certain period (most often the last five years) and benchmarking (comparison with the main competitors, industry leaders or average values for the sector). In the second type of analysis, analysts use different models depending on the goals they set themselves to determine the influence of the relevant factors on the profitability of the business. Fig. 1 presents several models of great practical significance. It is worth noting the second model of ROA, which depicts the relationship between efficiency and profitability of the business (Fig. 1). L. Todorov believes that achieving and maintaining high profitability is possible if management teams focus their attention on sales management and business efficiency, which in turn is related to the product and investment policy of the company. He draws attention to the fact that business efficiency can be considered not only as a result, but also as a factor on which the amount of profit depends.

Fig. 1 Business profitability – organization of the analysis

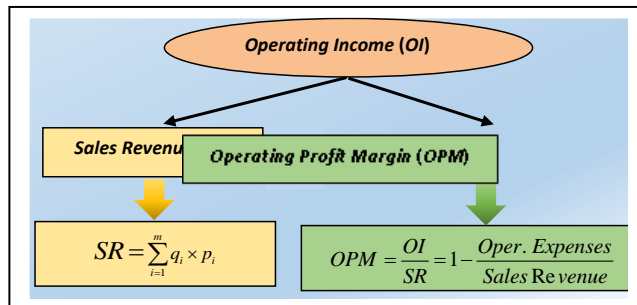


Source: <https://www.ides.bg/e-journal/2017/issue-2/02-2017-1-todorov>

- ATO* – Asset Turnover
- ROR* – Return On Revenue
- SR* – Sales Revenue
- OPM* – Operating Profit Margin
- NOI* – Non-Operating Profit
- T* – Tax Rate
- TA* – Total Assets
- LR* – Leverage Ratio (TA/E)
- ROIC* – Return On Invested Capital
- DER* – Debt to Equity Ratio
- Rd* – Net Cost of Debt

This author offers the following model for analyzing and managing operating profit (Fig. 2 - Todorov L., 2017): Operating income (OI) can be represented as a function (product) of two main factors - sales revenue (SR) and operating profit margin (OPM).

Fig. 2 Operating profit analysis model



(Source: <https://www.ides.bg/e-journal/2024/issue-3/03-2024-lyubomir-todorov>)

m – Number of products types
q – Sales quantities
p – Sales prices

The model shows that management decisions aimed at ensuring and maintaining constant profit growth are of two types:

- Decisions aimed at achieving and maintaining constant sales growth, not only in the short term, but also in the long term;
- Decisions aimed at increasing business efficiency

The second type of decisions is mainly related to the optimization of processes and operating costs. It is known that the efficiency of the business as a whole depends on the ratio between operating costs and operating revenues of the enterprise. For convenience, it is adopted to measure the overall business efficiency using the operating profit margin (OPM). From Fig. 2 it is clear that its value directly depends on the ratio between costs and revenues. The analyst could make a detailed breakdown of operating costs using information from the income statement or directly from the accounts. By comparing the individual types of costs per one EUR of sales for the reporting year compared to the previous year, the reasons that led to the change in the operating profit margin can be identified. This information is extremely useful for business management.

The presented ROA analysis model (the second ROA model in Fig. 1) actually expresses the influence of changes in sales, business efficiency, non-operating profit and the amount of invested capital on the change in the profitability of the business for a given period of time. Most often, this period is one calendar year. The model can also be used to forecast future profitability. For example, if a certain sales growth and an unchanged operating margin are expected next year, then the analyst could approximately accurately determine the expected net profit. Then, in order to determine the forecast ROA, it is necessary to predict the expected changes in the value of invested capital, that is, in the amount of the company's assets.

Bennett Stewart in his 1990 book offers an interesting modification of ROA, which he calls ROIC – Return On Invested Capital (Stewart, G. Bennet, 1990):

$$ROIC = \frac{NI + i \cdot (1 - T)}{TA - NIBCL} = \frac{NOPAT}{IC} \quad (1)$$

NI – Net Income
i – Interest expenses
T – Tax rate
TA – Total assets
NIBCL – Non-interest bearing current liabilities
NOPAT – Net operating profit after tax
IC – Invested Capital

An important feature is that the calculations take into account the value of the invested capital at the end of the previous year. The ROIC indicator is the basis of the Economic Value Added (EVA) model proposed by Stewart:

$$EVA = (ROIC - WACC) \times IC \quad (2)$$

WACC – Weighted-average cost of capital

EVA shows in absolute terms the change (increase or decrease) in the value of the company for the relevant year. When $ROIC < WACC$, the company does not provide the necessary return for investors, corresponding to the risks taken. In this case, EVA is negative and shows in absolute terms the reduction in the value of the company for a period of one year. WACC is perceived as the minimum return required by investors on the invested capital, which corresponds to the risks taken by them. It is defined as a weighted average of the cost of debt and the cost of equity of the company. Determining the cost of debt is not complicated, since this cost depends primarily on the interest rates on the individual loans (bank and bond) on which the company is a debtor. Determining the cost of equity is a little more complicated, especially for countries with underdeveloped capital markets. In this case, Gordon's model for discounted dividends (DDM – Dividend Discount Model) is not desirable to use. Almost all analysts determine the cost of equity by applying the modifications of the CAPM (Capital Asset Pricing Model) applicable to emerging

markets (Damodaran, A.2003). For example, under the first of these modifications, the cost of equity is determined as follows:

$$R_E = R_f + \beta_L \cdot R_{MRP} + R_{CRP} \quad (3)$$

R_E – Cost of Equity

R_f – Risk-free Rate

β_L – Levered Beta

R_{MRP} – Market Risk Premium

R_{CRP} – Country Risk Premium

4. CONCLUSION

In conclusion, the following more important generalizations and conclusions can be made:

- The efficiency and profitability of the business can be measured, analyzed, controlled and managed using specific indicators and models;
- The models proposed in the development make it possible to establish the reasons that led to changes in the indicators of efficiency and profitability of the business during a given period, which in turn helps corporate management in making correct and justified decisions related to business management;
- The proposed models are extremely valuable for corporate management, since on the one hand they reveal the weaknesses and problem areas in the business, and on the other hand they support the making of operational and strategic decisions related to the product, marketing and investment policy of the enterprise, aimed at achieving constant and sustainable sales growth, optimizing business processes and operating costs and ultimately achieving the maximum possible profitability.
- The ROIC indicator surpasses the main profitability measure ROA in that it allows to link the profitability of the business to the value of the company, by comparing ROIC and WACC. In this way, financial analysts and interested parties can check whether the relevant enterprise provides the necessary profitability for investors, corresponding to the risks inherent in the specific business.
- The presented models show that the profitability of the business and, respectively, the value of the company depends mainly on three main factors - profits and, respectively, cash flows, the amount of invested capital and the cost of capital. Corporate management could successfully influence these key determinants of value in order to maximize it, which would make the company more attractive to investors.

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